UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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OFFICE OF
ENVIRONMENTAL
CLEANUP

OCT - 1 2014

MEMORANDUM

SUBJECT: EPA Response to Legacy Site Services' September 12, 2014 Notice Seeking Formal Dispute Decision; Arkema Inc. Portland Facility
Administrative Order on Consent for Removal Action
U.S. EPA Region 10 Docket No. CERCLA 10-2005-0191

FROM: Shawn Blocker, Unit Manager
Superfund Site Cleanup Unit #3
Remedial Cleanup Program

TO: Richard Albright, Director
Office of Environmental Cleanup

Arkema, Inc. through its agent, Legacy Site Services (LSS), invoked formal dispute in accordance with Paragraph 50, Section XVI of the Administrative Order on Consent for Removal Action (2005 AOC), dated June 27, 2005. Arkema's formal dispute statement and supporting documentation were submitted in a letter LSS addressed to you dated September 12, 2014.

The attached enclosure and exhibits constitute the U.S. Environmental Protection Agency's response to Arkema's dispute statement. Arkema's September 12 letter and associated supporting documentation previously transmitted to you along with EPA's Response and exhibits and any reply Arkema may submit in accordance with your September 18, 2014 letter, constitute the administrative record ("Dispute Record") for deciding this dispute unless you request additional information.

Arkema is formally disputing EPA's disapproval of a Draft Sediment Sampling Work Plan dated April 30, 2014. Their main argument is that the Work Plan addresses data gaps needing to be addressed before a remedy decision can be made for sediment adjacent to its facility. EPA's position is that there is sufficient information in the current data set that includes the data and information gathered under the Portland Harbor RI/FS Settlement Agreement and Administrative Order on Consent as well as the data gathered to date under Arkema's 2005 AOC.

Please let me know if you have any questions or concerns about this memo.

Attachment

cc: Doug Loutzenhiser, LSS
Steve Parkinson, Joyce Ziker Parkinson
Sean Sheldrake, ECL
Lori Houck Cora, ORC

EPA RESPONSE TO LSS ADDITIONAL DISPUTE POSITIONS DATED SEPTEMBER 12, 2014.

A. INTRODUCTION

On July 3, 2014, Arkema, Inc. (Arkema) through its agent, Legacy Site Services (LSS), invoked informal dispute in accordance with Section XVI of the Administrative Order on Consent for Removal Action, effective June 27, 2005 (2005 AOC) regarding EPA's disapproval of a sampling work plan that LSS submitted on April 30, 2014 (July 3rd LSS letter is Attachment 1 to September 12, 2014 LSS letter). EPA responded to LSS's dispute statement by letter dated September 5, 2014 (Attachment 3 to September 12, 2014 LSS letter). Agreement was not reached during the AOC Negotiation Period, and LSS submitted additional information and arguments in its notice of formal dispute dated September 12, 2014. Therefore, EPA hereby provides its additional responses and supporting information for the dispute official to consider.

Arkema is formally disputing EPA's disapproval of a Draft Sediment Sampling Work Plan arguing the "Work Plan is to collect data that are vital to a proper evaluation of the [Arkema] site if it is rolled into the Portland Harbor RI/FS [Remedial Investigation/Feasibility Study] instead of proceeding as a removal action" (Page 1, 1st paragraph of September 12th letter). Before addressing the substantive dispute positions of LSS, EPA needs to clarify the relationship between the Arkema early action AOC and the RI/FS Settlement Agreement and Administrative Order on Consent (RI/FS AOC) under which EPA and the Lower Willamette Group (LWG) are conducting the RI/FS for the Portland Harbor Superfund Site.[1] A relationship self-evident and undisputable from the two documents themselves. Exhibit 1 to this Response contains copies of both the 2005 AOC and the original RI/FS AOC.[2]

LSS' September 12th letter erroneously couches this dispute in the posture that the Arkema site is not a part of the RI/FS for the Portland Harbor Superfund Site and somehow the 2005 early action AOC replaced the RI/FS for the Portland Harbor Site. That framing could not be more wrong. Also, LSS incorrectly implies that the draft Engineering Evaluation/Cost Analysis (EE/CA) that it provided to EPA on July 26, 2012 was in place of a RI/FS and Record of Decision, thus, the additional data Arkema seeks to gather is "vital to a proper evaluation of the [Arkema] site *if [the EE/CA] is rolled into the Portland Harbor RI/FS. . . .*" This characterization of the role of the EE/CA in relation to the Portland Harbor RI/FS is wholly contrary to the terms of the 2005 AOC, the RI/FS AOC and all RI/FS work that has been conducted over the past 13 years. The 2005 early action removal order was intended to be a vehicle by which high concentration sediment would be removed from the Willamette River early, ostensibly prior to the Record of Decision for the Portland Harbor Superfund Site (see the 2005 AOC and SOW attached as Exhibit 1 to this Response). Data gathered by Arkema under its 2005 AOC was gathered to meet the objectives stated in the 2005 AOC. All the while, the Arkema site has always been a part of the investigation area for the remedial investigation and sediment and surface water adjacent to the Arkema site was sampled by the LWG as part of the Portland Harbor RI. The Portland Harbor RI evaluated human health and ecological risk at the Portland Harbor Site relying on data gathered at the Arkema site under the RI/FS AOC as well as throughout the investigation area. The Portland Harbor FS is evaluating remedial action alternatives for a sediment management area adjacent to the Arkema site. The 2005 AOC did not replace or in any way decrease the scope of work under the RI/FS AOC. In particular, the 2005 AOC did not relieve the LWG from its obligations and commitments to gather the necessary data and

[1] Arkema, Inc. is a Respondent to the RI/FS AOC, and a member of the Lower Willamette Group.
[2] The RI/FS AOC has been amended twice, but the amendments are not applicable to the issues in this dispute.

information to complete an RI/FS that EPA could approve under its RI/FS AOC. Accordingly, it is the RI/FS AOC that determines the schedule for the RI/FS to be complete, not the 2005 AOC in any way.

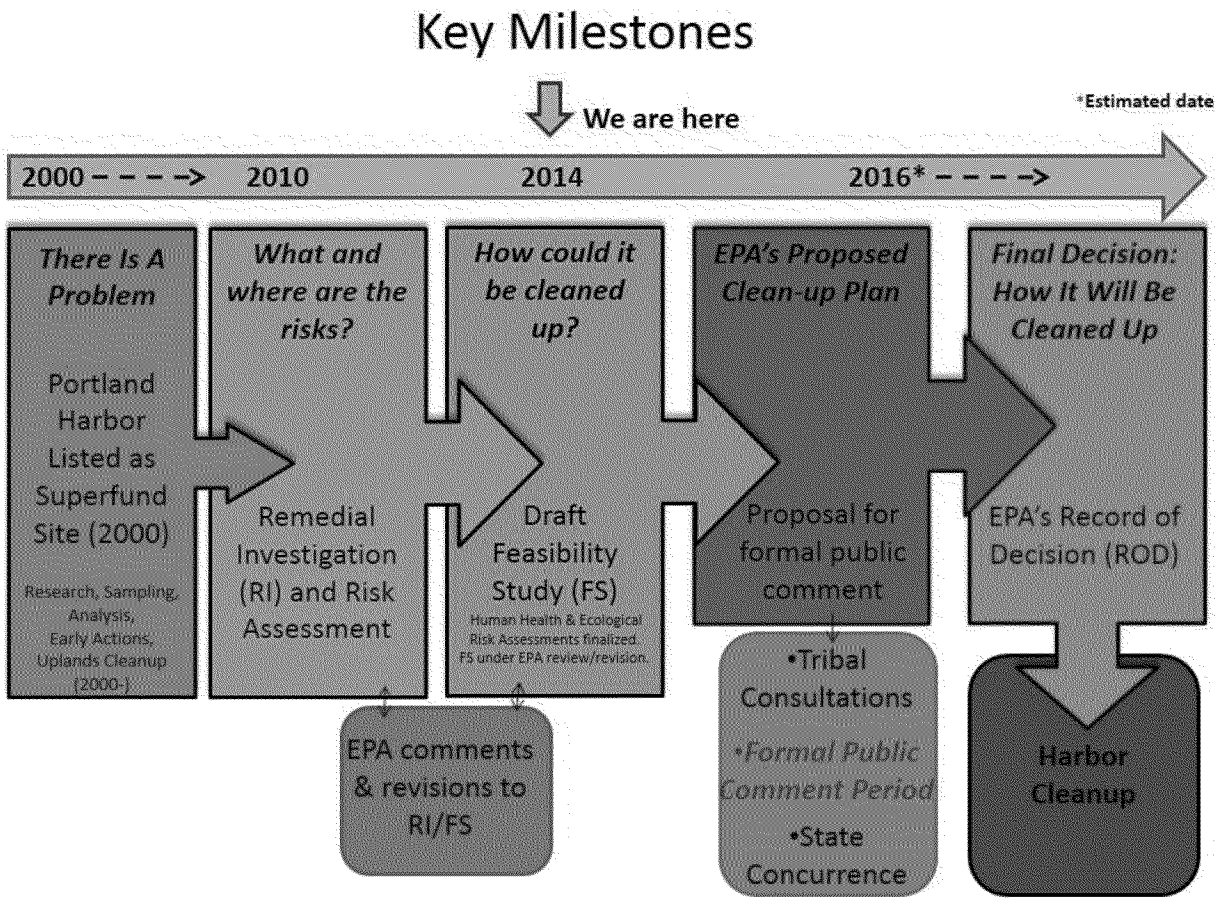
EPA has agreed to include all of the data gathered under the 2005 AOC into the RI/FS administrative record and in fact, as of the end of May 2014, all Arkema data was included in the Portland Harbor FS sediment database. Contrary to LSS' characterization, the EE/CA was never approved by EPA and is not going to be "rolled into the RI/FS" as stated by LSS.[3]

B. ARKEMA CAN NOT REQUEST ADDITIONAL RI SAMPLING UNDER ITS 2005 AOC

Section XXVII, Paragraph 88 of the 2005 AOC provides that Arkema may request "to deviate from any approved work plan or schedule or the Statement of Work" but submission of "a written request to EPA for approval outlining the proposed modification and its basis. Respondent may not proceed with the requested deviation until receiving written approval from the EPA Project Coordinator . . . ." The only reason under the 2005 AOC they can request to modify the approved removal action work plan is for purposes of accomplishing the objectives of that order.

LSS is essentially arguing that it has the right under the 2005 AOC to control the RI/FS and the schedule for its completion. This is an untenable position and nothing in the 2005 AOC, National Contingency Plan, or any other principle of administrative law supports LSS' position. EPA and the LWG (which Arkema is a member of) are developing the RI/FS under the September 2001 RI/FS AOC. Below is the current RI/FS, Proposed Plan and ROD schedule. Only the LWG has the right to request that additional RI data be taken under the RI/FS Order. To date, the LWG has not indicated concerns that the sampling it conducted over more than 7 years and the resulting data that it provided to EPA is insufficient for finalizing the RI/FS and selecting a remedy for the Portland Harbor Superfund Site. Under the terms of the RI/FS AOC, Arkema cannot dispute the validity of any data gathered under the RI/FS AOC (Section XIV, Paragraph 5), and the time for Arkema to raise a dispute regarding any alleged data gaps for the RI/FS has long past (Section XVIII, Paragraph 1).

[3] The EE/CA had many deficiencies that EPA pointed out in its comments attached as Exhibit 2 to this Response. Given that the EE/CA was disapproved and the RI/FS had overtaken any chance of early removal work prior to a final remedy decision for the Portland Harbor Site, EPA determined that it should focus its staff and resources on finalizing the RI/FS and not request the EE/CA to be finalized. We reached agreement with LSS to terminate the 2005 AOC (see Exhibit 2 to LSS' September 12, 2014 letter).



As further discussed below, EPA has technically sound reasons for why the data proposed by Arkema is not needed to make a remedy decision. However, arguably their entire dispute is void and inappropriate because it has not been raised under the applicable AOC. EPA disagrees that the data is needed to make a remedy decision for the Portland Harbor Superfund Site and so does the LWG as evidenced by the fact it has not requested approval to collect more data under the RI/FS AOC.

EPA has been clear with Arkema that additional data to design a protective remedy will be necessary at the Arkema site. We would greatly appreciate Arkema's enthusiasm to agree to begin to collect design samples under an amended order with EPA. However, to stay on the aggressive schedule we have set for finalizing the RI/FS and publishing a proposed plan for the Portland Harbor Superfund Site, EPA's time and attention needs to be devoted to accomplishing that result and any additional design sampling would not be on a schedule tied to completion of the RI/FS.

C. EPA RESPONSES TO LSS DISPUTE ITEMS

EPA's responses to LSS' arguments are presented below. LSS chose the parts of EPA's September 5th responses to excerpt and further dispute; however, we submit that EPA's September 5th letter when read in total also responds to LSS' current arguments and is resubmitted here as Exhibit 3 and incorporated as a part of this Response. We request the dispute official read EPA's September 5th letter in total to obtain

the appropriate context and full meaning of EPA's positions stated therein. EPA's specific responses to LSS' formal dispute issues are in italics below.

EPA September 5th Statement/Position: "From experience, EPA anticipates a time consuming process working through diver health and safety plan requirements that are applied to all diving projects taking place under EPA oversight as well as quality assurance/quality control (QA/AC) [*sic*] comments on the technical aspects of the work. A several month comment/document revision process recently occurred for a pore water study undertaken at the River Mile 11 East site."

LSS Response: LSS is aware of the River Mile ("RM") 11 work and would have liked to have been afforded the same opportunity to revise and implement a final work plan as was provided to the RM 11 responsible parties ("RM11 Group"). The RM11 Group submitted a draft work plan for pore water sampling on March 3, 2014; EPA provided comments on April 25, 2014. A final pore water sampling work plan was submitted to EPA on May 22, 2014. The RM 11 pore water sampling work commenced on or about August 18, 2014. In contrast, on April 30, 2014, LSS submitted the Arkema Work Plan, which with the exception of the pore water sampling element, incorporated activities that are essentially equivalent to previous EPA-approved work done at the Arkema site. To date, LSS has not received any specific comments. It is LSS' strong opinion that, had we been afforded the opportunity to address any comments EPA may have had on the Arkema Work Plan, LSS could have been in the field expeditiously. At RM 11, EPA worked with the RM11 Group and initiated fieldwork within 5½ months after submittal of the draft plan. LSS still has not received any specific comments on the Arkema Work Plan 4½ months after plan submittal. From LSS' perspective, this delay and arbitrary treatment is confusing, frustrating, and runs contrary to the NCP and Arkema's AOC. LSS would still like to resolve any technical issues on the Arkema Work Plan and is offering to incorporate the EPA-approved procedures from the RM 11 pore water sampling work, as provided.

***EPA Counter Response**: The purpose of the River Mile 11 East (RM11E) project which began 2013 is to perform supplemental RI/FS work in support of preliminary design activities for the RM11E Project area. The schedule for completion of the RI/FS is not tied to receiving RM11E data. The RM11E Group submitted their draft supplemental RI/FS work plan on June 28, 2013 pursuant to an AOC signed in April 2013. The referenced RM11E pore water work plan required much discussion with the RM11E Group which began well before the RM11E Group submitted its final supplemental RI/FS work plan on October 3, 2013. The pre-submission discussions are not reflected in the 5½ month timeframe referenced by LSS between submittal of the draft pore water work plan and initiation of the pore water field work. Unfortunately, EPA's prior experience with LSS has been that reaching resolution on sampling plans at the Arkema site has typically taken much longer. For example, the timeframe for submittal, approval, implementation and documentation of the EE/CA Work Plan Addendum was as follows:*

- *July 22, 2008: LSS submitted the Draft EE/CA Work Plan Addendum to EPA*
- *August 21, 2008: EPA provided comments to LSS on the draft EE/CA Work Plan Addendum; an approximate nine month process to negotiate a final EE/CA Work Plan ensued*
- *May 15, 2009: A final EE/CA Work Plan Addendum (including Field Sampling Plan, Quality Assurance Plan and Health and Safety Plan) was submitted to EPA*
- *June 12, 2009: EPA conditionally approved the EE/CA Work Plan Addendum*
- *August 5, 2009: EPA provided supplemental conditional approval for fieldwork to commence*
- *August 18, 2009: Field work began*

- *October 30, 2009: Field work completed*
- *December 26, 2010: Draft Removal Action Area Characterization Report submitted to EPA*

The total time between submittal of the draft EE/CA Work Plan Addendum and initiation of the field work was approximately 13 months. EPA reiterates that additional data similar in scope of the April 30, 2014 Draft Sediment Sampling Work Plan, may be necessary for the remedial design after the ROD, but is not required for finalization of the RI/FS.

EPA September 5th Statement/Position: "The Portland Harbor RI/FS schedule has overtaken any possibility of early removal work at the Arkema site, thus, there is no need for finalizing the Engineering Evaluation/Cost Analysis (EE/CA) for the Arkema Early Action Site in response to EPA comments." (Introduction)

LSS Response: This statement implies that the Portland Harbor RI/FS is on a fast track and that there simply is not time to fill the data gaps at the Arkema site and conduct a proper analysis. A closer look at the actual schedule undermines this position. LSS does not understand what "overtaken" means with respect to the Portland Harbor RI/FS and Arkema EE/CA schedules. LSS was continuing to work toward finalizing an EE/CA document which could then be used to select and design a final remedy for the Arkema Early Action area. In addition, by a letter dated June 14, 2011 and at a following meeting with EPA, LSS proposed an EE/CA remedy that was "shovel ready" to remediate 98% of the DDx mass and almost 100% of the furan mass within the Removal Action Area boundary (Exhibit 1). Instead, EPA elected to continue with the EE/CA process. Currently, EPA is affording the RM11 Group the opportunity to collect data that aid in the design of the remedy for RM 11E under a schedule parallel to the RI/FS EPA's website even compares the RM 11E process to the remedies that are being considered at Arkema and GASCO: *"The purpose of the supplemental remedial investigations for River Mile 11E is to obtain additional information needed to select and design the cleanup remedy for this section of the Portland Harbor site. The intent is to begin cleanup of River Mile 11E and other hot spots (areas with elevated contaminant concentrations), such as Arkema and Gasco, before starting cleanup of the rest of the Superfund site."* (http://yosemite.epa.gov/r10/cleanup.nsf/sites/11e). If provided the opportunity, LSS is still committed to completing the Arkema Work Plan in a timely manner such that it could be utilizedand incorporated in the Portland Harbor FS and remedial design.

The Portland Harbor RI/FS process has been a long and daunting one. The Draft Final RI was submitted by the LWG to EPA on August 29, 2011. The RI has been subject to a sequential review andrevision process guided by EPA, but even 3 years after the document was submitted, that process is still ongoing. Similarly, the FS is going through a separate process. However, even though the Draft Portland Harbor FS was submitted on March 30, 2012, none of the FS chapters has been finalized and discussions on many of the FS technical issues are still unresolved 2½ years later, while other issues have not yet been discussed.

As recently as the August 13, 2014, Portland Harbor Community Advisory Group meeting, EPA presented a schedule that shows the FS is to be completed in the second half of 2015. Yet more recent indication is that the FS process will take longer. Therefore, it is not at all certain that the FS is proceeding faster or has "overtaken" the EE/CA. In addition, work at the RM 11 site is proceeding under a parallel schedule to the RI/FS. The RM11 Group is scheduled to submit a Pore Water Characterization report in January 2015 and a draft recontamination assessment and implementability study inor about March 2015. RM 11's response action goals are documented in the scope of work to the AOC for RM 11E and state: *"The response action goals are the further characterization, studies, and analysis to*

support the preliminary design for the River Mile 11E Project Area that are supplementary to the RI/FS for the Portland Harbor Superfund Site being conducted pursuant to the Administrative Settlement Agreement on Consent for Remedial Investigation and Feasibility Study (Docket No. CERCLA-10-2001-0240) and that will facilitate selection and design of a final remedy at the River Mile 11E Project Area. Conducting this work now will facilitate final design and construction of the final remedy for the River Mile 11E Project Area to begin expeditiously following issuance of a ROD for the PHSS." The response action goals for the Arkema Early Action are essentially the same. If the RM 11E site is allowed to progress with its investigation and analysis in parallel with the Portland Harbor RI/FS process, then the Arkema site should be afforded the same opportunity.

EPA Counter Response: *Please see the RI/FS schedule above. In order to meet that schedule, EPA's staff and resources are focused on a Proposed Plan in late 2015/early 2016 and a 2017 ROD. Sufficient data exists now to make a remedy decision (see EPA's September 5 letter and our responses below), and it is reasonable for EPA not to jeopardize the ROD schedule with unnecessary data gathering. Finally, it should be recognized that sampling activities at the RM11E Project Area and Gasco early action site are focused on facilitating remedial design post-ROD so those areas are ready to start cleanup as soon after the ROD as possible. The schedules under those orders are not attached to the schedule for completing the RI/FS. As stated in our September 5, 2014 comment letter, EPA is supportive of additional characterization activities that target remedial design and would be amenable to considering an amended order for remedial design sampling.*

EPA September 5th Statement/Position: "EPA does not approve LSS' request that EPA accept data generated from the Arkema site that was not generated under EPA-approved planning documents, given the many QA/QC, health and safety, and sampling and analysis plan challenges posed by the many types of sample collection proposed." (second paragraph, page 5)

LSS Response: This basis for rejecting this Work Plan is an abuse of discretion. All work will be conducted in accordance with the CERCLA compliant Health & Safety Plan prepared by the LWG for the Lower Willamette site including the areas where LSS proposes to perform additional sampling and testing. The Arkema Work Plan Quality Assurance Project Plan is well defined for data collection efforts similar to previous sampling efforts. The use of passive sampling devices is the only portion of the proposed work that has not previously been conducted by LSS or the LWG. As previously noted, LSS has offered to follow or adopt the protocols for passive sampling presented in the EPA-approved work plan dated May 22, 2014 for the RM 11 investigation. Finally, as LSS noted in its July 3 dispute letter (Attachment 1), EPA is currently using data for the FS that were not collected under EPA-approved work plans or under EPA oversight.

EPA Counter Response: *First, EPA's statement excerpted by LSS was in response to Arkema claiming in its July dispute letter that it could proceed to collect data outside of the 2005 AOC and without EPA approval and EPA should agree to accept it. EPA's statement was merely indicating the high risk Arkema would be taking if it collects data without EPA's approval of sampling methods and protocols. However, this issue has nothing to do with Arkema's dispute that EPA should approve its Draft Sampling Work Plan under the 2005 AOC. Second, to further support why Arkema would be taking significant risk in collecting data without an approved work plan, each sampling activity has site-specific contaminant and physical issues that must be addressed during the design of characterization plans. For example, at the Arkema site, high levels of DDx and chlorobenzene have been detected in surface and subsurface sediments, basalt can be present within a few feet of the sediment surface, and large dock structures are present within the area of highest contamination. All these site-specific factors must be considered when developing, reviewing, and approving work plans for in-water investigations.*

EPA acknowledges that data is being utilized in the RI/FS that was not collected under EPA-approved work plans. See Exhibit 4 to this Response for a list of data included in the RI data set. However, that data was accepted after review and assurance that it met the QA/QC requirements detailed in the Portland Harbor Programmatic Work Plan for specific purposes and analysis.[4] *LSS's argument, however, is irrelevant as to whether EPA needs any more data than it currently has to make a remedy decision for the area adjacent to Arkema's facility. We have determined we do not need any more data to select a remedy.*

EPA September 5th Statement/Position: "the proposed Work Plan was so lacking in sampling location information it was not possible to evaluate whether LSS would be focusing on areas of uncertainty or something else."

LSS Response: LSS is perplexed by this statement; and, furthermore, it is absolutely inaccurate. LSS put an extensive amount of effort into condensing existing data and providing the rationale for the sampling plan in the text, figures, and tables of the Arkema Work Plan (Attachment 1, Exhibit 1). To use the benthic toxicity testing element as an example, a clearly written distilled summary of the existing benthic toxicity data was provided in Section 2.4 of the Arkema Work Plan along with a figure showing the results of all of the previous benthic toxicity sampling near the Arkema reach of the Willamette River (Attachment 1, Exhibit 1). The objectives, locations, and procedures for bioassay testing were then described in Section 3.1.4 of the Arkema Work Plan and shown on Figure 3-5. Finally, the rationale for each individual surface sample station, which includes northing and easting locations for each proposed station, is provided in Table 3-1. Therefore, LSS cannot fathom the basis of EPA's statement. Unfortunately, until LSS received the September 5 EPA letter, we were unaware that EPA was confused about the sampling locations or rationale since EPA had not provided any specific comments.

EPA Counter Response: *EPA acknowledges that Figures 3-1 through 3-6 of the Arkema Work Plan presents sampling locations for each of the investigation elements presented in the work plan. However, this one statement excerpted out of EPA's September 5th letter overemphasizes what was a minor point being made. Having sampling locations does not change the fundamental position that the data is not necessary for making a remedy decision.*

EPA September 5th Statement/Position: "EPA acknowledges that some existing plans may be useable, if EPA determined certain types of data were needed, which EPA does not."

LSS Response: LSS is confused by EPA's assertion that the "usable" data are not needed. In the June 6 EPA letter, EPA stated that data are needed to support remedial design activities, and that "additional sampling such as proposed may be considered to further design." EPA reiterated these thoughts during the June 19 call. Also, substantially equivalent data are being collected at the RM 11 area under an AOC with EPA; thus, it is only fair, logical, and scientifically appropriate to collect the same type of data for similar purposes at the Arkema site. As noted above, if provided the opportunity to cooperatively work with

[4] As Arkema should well know, during the development of the Portland Harbor Programmatic Work Plan, it was agreed to use non-LWG data if it met certain QA/QC requirements. Data of adequate quality were classified as Category 1 while data of lessor quality were classified as Category 2. Within Category 1, data were designated as QA 1 or QA2 with QA2 data having a higher level of data validation. As stated in the RI Report: Only Category 1, QA2 data are used in the BHHRA, the BERA, and the determination of background chemical concentrations (Section 7). Both Category 1 QA1 and QA2 data are used to describe the nature and extent of contamination (Section 5) and to evaluate contaminant loading, fate, and transport (Section 6). Category 2 data were generally used for project scoping.

EPA, LSS is still committed to completing the Arkema Work Plan in a timely manner such that it could be utilized and incorporated in the Portland Harbor FS and remedial design.

EPA Counter Response: *The EPA statement above is taken out of context. As stated in the September 5, 2014 letter, EPA agrees that data may be collected to support remedial design activities. For example, EPA stated explicitly "EPA believes that the proposed sampling to refine the distribution of NAPL in subsurface sediments at the Arkema site could be useful for remedial design activities." As a result, "some existing plans may be useable" for remedial design purposes. In addition, EPA has agreed to incorporate data collected previously by LSS in support of the Arkema EE/CA into the Portland Harbor FS. EPA has been consistent in its position that there is currently sufficient data and information to select a remedy.*

EPA September 5th Statement/Position: "…additional data at this particularly high concentration area in the Portland Harbor Site has been collected and has provided useful additional data in many respects which EPA will consider in selecting a remedy for the Site. In fact, this data has been incorporated into the Portland Harbor FS data base for use in the development and evaluation of remedial action alternatives." (second paragraph, page 1)

"EPA has integrated the EE/CA data into the database it is using for FS evaluations. The results of the evaluation, which includes the 2009 EE/CA data, have been presented to the LWG during ongoing Technical Workgroup meetings. EPA provided the FS database being used for the FS evaluations to the LWG on July 24, 2014. This database includes Arkema and Gasco EE/CA data sets." (section ii, page 3)

LSS Response: LSS disagrees with EPA's view that the existing EE/CA data are sufficient and that EPA has appropriately incorporated the data into the RI/FS analysis. LSS provided the validated engineering evaluation and cost analysis ("EE/CA") data in the Draft Removal Action Area Characterization Report to EPA on December 24, 2010. The agreement between EPA and LSS to include the EE/CA data in the Portland Harbor remedial investigation and feasibility study ("RI/FS") data set was memorialized in a letter from Steve Parkinson (Joyce Ziker Parkinson PLLC) to Lori Cora (EPA) dated March 31, 2014 (Exhibit 2). LSS acknowledges EPA's statement that the Arkema EE/CA data have been entered into EPA's FS database. However, LSS has either directly participated in and/or reviewed the summaries of the Technical Workgroup meetings noted in the September 5 EPA letter and has yet to see any substantive evidence that EE/CA data are being utilized in any way in the EPA-led revisions to the FS. FS direction from EPA continues to exclude the EE/CA data.

For example, the LWG noted in its comments on EPA's FS draft Section 1 text, dated August 29, 2014 (Exhibit 3), *"…EPA's plan for including early action datasets in various FS evaluations is currently unknown. For example, EPA's Section 1 draft proposes to use RI figures that clearly do not include the early action data."* This demonstrates that the EE/CA data continue to be excluded from analyses based on a comprehensive Portland Harbor RI/FS database.

By continuing to exclude relevant and appropriate sediment characterization data, EPA is arbitrarily and capriciously creating an inaccurate depiction of conditions at AOPC 14 and the entire Site, which is contrary to EPA guidance, principles, the National Contingency Plan ("NCP"), and the March 31, 2014 agreement between EPA and LSS.

EPA Counter Response: *This issue is irrelevant to Arkema's dispute regarding why it should be allowed to gather additional data. Data collected in support of the EE/CA at the Arkema site and presented in the Final Removal Action Area Characterization Report has been incorporated into the Portland Harbor FS database and has been used in support of FS-level evaluations. For example, the data has been used in*

queries and data analysis used to support development of sediment management areas in the vicinity of the Arkema site. The FS is still under development and the EE/CA data set is in EPA's database. Arkema's concerns regarding how EPA is analyzing the data in the FS can be raised during the redrafting of the FS under the RI/FS AOC, not under the 2005 AOC.

EPA September 5th Statement/Position: "EPA acknowledges that sediments between Docks 1 and 2 were found to be non-toxic; however, based on the results of the baseline ecological risk assessment (BERA) conducted during the Portland Harbor RI, the entire area offshore of the Arkema site has been identified as a benthic risk area based on multiple lines of evidence used to assess benthic risk (See Map 12-1 b of the Portland Harbor draft final BERA)."

LSS Response: LSS acknowledges that the Comprehensive Benthic Risk Approach ("CBRA") identifies a large footprint of potential benthic risk offshore of the Arkema site, including the sediments shown to be non-toxic between Docks 1 and 2. The CBRA integrates multiple lines of evidence, including actual toxicity test results, modeled and predicted results (including bioaccumulation pathways), and measures of risk associated with transition zone water ("TZW"). The CBRA may be adequate for assessing harbor-wide risks to benthic communities and defining areas that should be the subject of an action. However, as clearly evidenced by the actual toxicity testing results between Docks 1 and 2, the ability to assess site-specific conditions at a given river mile or sediment management area ("SMA") is not fully integrated into this approach. On a site/SMA level, specific conditions need to be assessed to confirm that the benthic impact footprint makes sense. This should involve further consideration of the various lines of evidence, including the results of actual benthic toxicity studies, which should take precedence over generic screening values and conservative modeled values and assumptions; consideration of potential confounding factors, such as those likely to be occurring offshore of the Salt Dock; and site-specific bioavailability. Based on actual toxicity test data for the Arkema site, the CBRA is significantly overestimating benthic risk at the Arkema site (Exhibits 6 and 7). LSS believes this is due to specific naturally occurring conditions at the Arkema site. The proposed additional toxicity tests will further evaluate and add to the evaluation of lines of evidence at the Arkema site. In addition, the proposed passive sampling will provide an assessment of the bioavailability of chemicals, which currently is based on a modeled approach. Based on these further evaluations and reconsideration of the lines of evidence from the CBRA approach, the benthic risk footprint would be reduced. Finally, LSS notes that the TZW line of evidence, which was one factor in determining the benthic risk footprint, is no longer valid in the vicinity of the Arkema docks since LSS implemented the groundwater source control measure at the Arkema site.

EPA Counter Response: *Sediments offshore of the Arkema site were found to pose a risk to the benthic community based on a multiple line of evidence approach and, as a result, have been identified as a comprehensive benthic risk area*[5]*. Lines of evidence considered in this evaluation include sediment toxicity bioassays, predicted toxicity (based on multiple sets of sediment quality values [SQVs]), tissue residues (both empirical and predicted) and transition zone and surface water results. Although sediments offshore of Arkema were identified as a benthic risk area, the areal extent of any sediment management areas adjacent to Arkema's facility will be based on remedial action levels (RALs), which is primarily related to the distribution of total DDx and total dioxins and furans. See EPA's counter*

[5] EPA notes that the September 12, 2014 LSS letter defines CBRA as Comprehensive Benthic Risk Approach as noted in the LSS response above while EPA identifies CBRA as the acronym used for "Comprehensive Benthic Risk Areas" which are derived from the comprehensive benthic approach to identify areas posing potentially unacceptable risk to the benthic community for use in the FS.

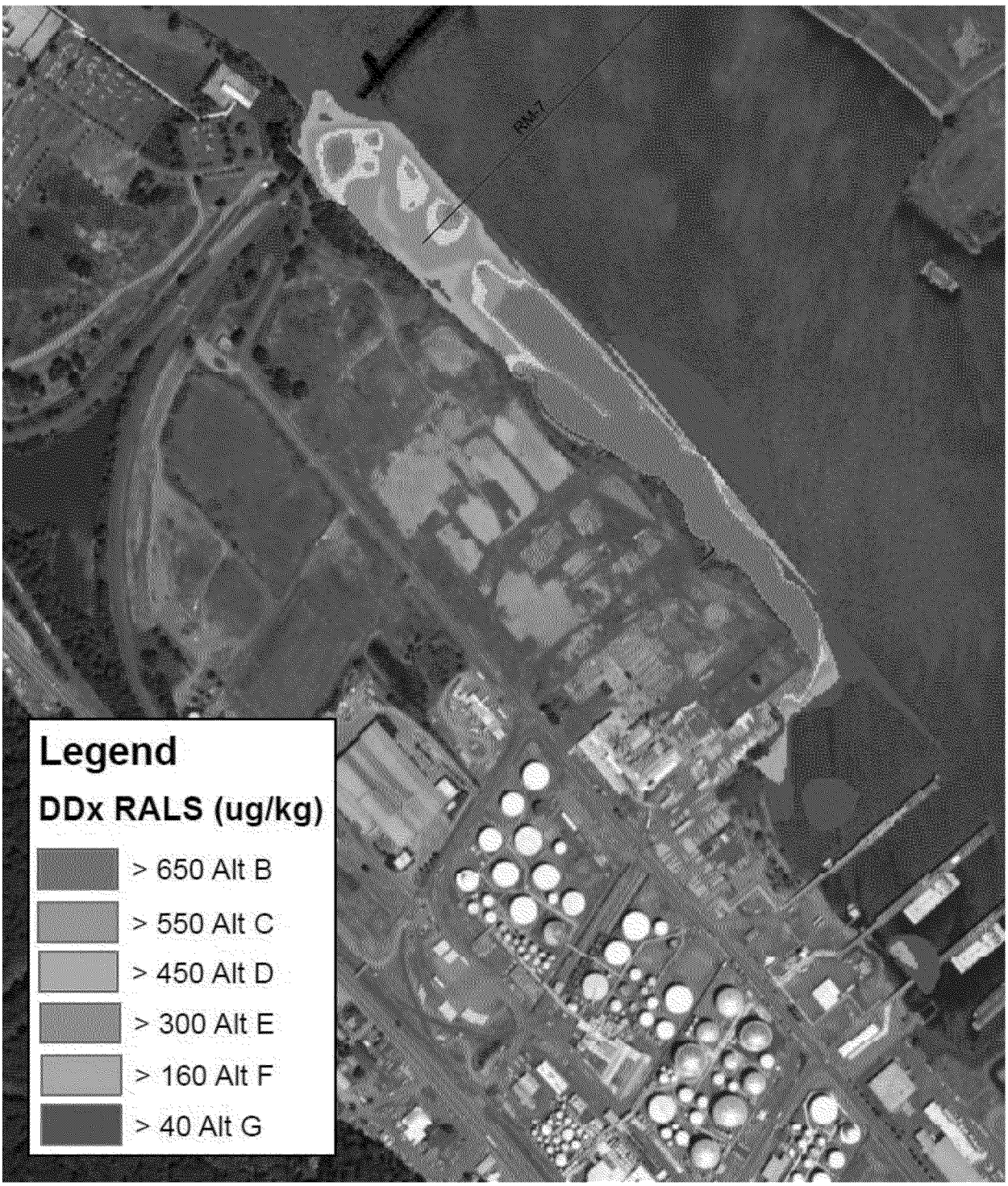
responses to the next issue for more details about what is driving the boundary of necessary remedial action off of Arkema's facility.

EPA September 5th Statement/Position: "Although additional benthic toxicity tests could refine the extent of contamination with respect to benthic toxicity, for remedy selection purposes the extent of contamination requiring remediation offshore of the Arkema Facility is expected to be primarily based on human exposure to DDx, polychlorinated dibenzo dioxins and furans ("PCDD/F") and, to a lesser extent, polychlorinated biphenyls ("PCBs") through the fish consumption exposure pathway rather than solely driven by benthic toxicity"

LSS Response: The footprints of the RALs and benthic risk areas for Alternatives B through D are presented in Figures 5.3-1a through 5.3-1c of the Portland Harbor draft FS report (Exhibit 8). The draft FS report utilized sum DDE rather than total DDx. The sum DDE footprints for alternatives B through D in the draft FS report are only a very small fraction of the benthic risk footprints, which shows benthic toxicity is driving risk adjacent to the Arkema site. As stated above and in the previous statement by EPA, the CBRA showed the entire area offshore of the Arkema site as posing potential benthic risk. However, this finding is inconsistent with the empirical bioassay testing results presented in Figure 3-5 of EPA's May 11, 2007 EE/CA work plan (Exhibit 9). Other site-specific conditions are likely affecting the benthic risk assessment at the Arkema site and need to be assessed and considered. Based on these factors, LSS believes that the CBRA is significantly overestimating benthic risk at the Arkema site. Therefore, resolving this discrepancy and refining the extent of benthic risk is a critical data gap, especially where the CBRA extends into the area offshore of the Salt Dock and where modeled values are driving the footprint.

EPA Counter Response: *As stated previously, sediment management areas in the vicinity of Arkema's facility are based on RALs and for that area of the river is primarily based on the distribution of total DDx and total dioxins and furans. As presented in the figure below[6], the entire comprehensive benthic risk area is encompassed by one or more total DDx RALs used in the development of SMAs to be evaluated in the Portland Harbor FS. Therefore, any further sampling to refine the benthic risk area would not significantly change the areal extent of the remedy decision in this area.*

[6] This map was generated by EPA's contractor, CDM Smith, using the Portland Harbor FS database. While this specific map has not been provided to the LWG as part of the ongoing Technical Workgroup meetings, the underlying data was previously provided to LWG. The sediment management areas GIS layer was provided to LWG on May 21, 2014 and the RAL GIS layers were provided on May 27, 2014. In addition, the LWG was made aware of the DDx RALs during a November 13, 2013 EPA/LWG meeting.



EPA September 5th Statement/Position: "Further, as shown in the previously referenced BERA Map 12-1b, the area of benthic risk is fairly well defined based on multiple lines of evidence including empirical and predicted benthic tissue concentrations, comparison to sediment quality guidelines, and transition zone water results in addition to sediment bioassays."

LSS Response: As stated above, the CBRA may be adequate for assessing potential risk to benthic communities on a harbor-wide basis, but it was not designed to address issues at a small spatial scale or specific cases of potentially confounding factors, such as the Salt Dock area at the Arkema site, as discussed further below.

EPA Counter Response: *The comprehensive benthic risk areas are considered sufficient for identifying areas that pose a risk to the benthic community. Although the area offshore of the Arkema site been identified as a benthic risk area based on the results of the risk assessment, the analysis of areas and volumes of contamination in the FS is primarily focused on the distribution of DDx and dioxin and furans in sediment (see above figure).*

EPA September 5th Statement/Position: "EPA acknowledges that elevated chloride concentrations may be contributing to benthic toxicity offshore of the Salt Dock and that the proposed bioassay work in the vicinity of the Salt Dock could help determine the cause of the observed toxicity. However, it should be noted that other constituents present in sediments offshore of Arkema could also be contributing to toxicity, and causal relationships for benthic toxicity are difficult to establish and likely could be inconclusive."

LSS Response: For the most part, LSS concurs with this statement and believes that the proposed toxicity tests, which are specifically designed to separate toxicity due to chloride from toxicity that could be related to any other chemical constituents or naturally occurring processes, are important to refine the extent of benthic risk at the Arkema site. LSS notes that the toxicity tests inherently look at all chemicals present in the sediments that could be contributing to toxicity, and the focus on elimination of chloride as a confounding factor is important. The current benthic risk footprint is driven by toxicity test results on either end of the Arkema site, with those samples off the Salt Dock appearing to "bound" modeled results in the middle; elimination of a toxic result off the Salt Dock would result in modification of the benthic risk footprint. In addition, LSS notes that the approach outlined in the Arkema Work Plan is specifically designed to avoid providing information that is "inconclusive."

EPA Counter Response: *As noted above, the area offshore of Arkema has been identified as a comprehensive benthic risk area. It is likely a number of factors are contributing to observed toxicity including salt (NaCl), perchlorate, hexavalent chromium, total DDx and chlorobenzene. Given the number of contaminants and media in this area likely contributing to benthic risk and given that the analysis of areas and volumes of contamination in the FS is primarily focused on the distribution of DDx and dioxin and furans in sediment, further assessment of the causes of toxicity to the benthic community for purposes of the RI/FS would not likely result in conclusive answers and is not needed.*

EPA September 5th Statement/Position: "Finally, it should be noted that because the salt piles have been removed and because chloride moves through groundwater with little or no retardation, any elevated chloride concentrations in groundwater would be expected to decline over time. During remedial design, the effectiveness of the source control efforts on the salt piles should be evaluated."

LSS Response: LSS notes that EPA's statement provides strong rationale for conducting the proposed toxicity tests in a timely way, and LSS believes that further refining this endpoint prior to finalizing the FS is important. The benthic toxicity data collected as part of the Arkema Work Plan could and should be compared to the data collected by the LWG between 2004 and 2007. The bioassay testing proposed in the Arkema Work Plan would link contemporary benthic toxicity data with contemporary Arkema sediment pore water chloride concentrations to determine if a cause and effect correlation can be made between pore water chloride concentrations and benthic toxicity. LSS notes that the chloride concentrations in

shallow and intermediate-zone groundwater in the chlorate plant area have decreased by approximately an order-of-magnitude since the LWG toxicity data were collected in 2007. Also, it should be noted that Arkema's groundwater source control measure includes a slurry wall that prevents any remaining chloride in groundwater from being discharged to the river.

The bioassay testing recommended in the Arkema Work Plan should be completed now to determine if the toxicity observed in the LWG bioassay samples collected from the vicinity of the Salt Dock was due to elevated chloride concentrations in sediment pore water and to provide contemporary data on benthic toxicity in this area. As noted above, the chloride concentrations in shallow and intermediate-zone groundwater in the chlorate plant area have decreased by approximately an order-of-magnitude since the LWG toxicity data were collected. The bioassay data proposed in the Arkema Work Plan should be considered in the alternative evaluation in the FS since a remedy selected to remediate benthic toxicity based on "other constituents" will fail if the toxicity is driven by chloride from the former salt pad storage area.

EPA Counter Response: *Remedial design activities are expected to consider the effectiveness of source control measures to address groundwater discharges of chloride and other constituents offshore of the Arkema site. For example, groundwater contaminant flux measures may be required to properly design sediment capping or dredged residual management layers. However, for the purposes of the Portland Harbor FS, existing sediment data is considered adequate to identify contaminants and exposure pathways contributing risk and to delineate the vertical and horizontal extent of sediment contamination offshore of the Arkema site.*

EPA September 5th Statement/Position: "EPA acknowledges that PCB analysis offshore of Arkema has been affected by interferences resulting in elevated detection limits due to high concentrations of DDx in sediments. But given that the extent of cleanup in the Arkema area is driven primarily by the DDx and PCDD/F fish consumption exposure pathways (and to a lesser degree, benthic risk), more PCB analysis is not needed for remedy selection, …. Additional sampling for COCs, such as PCBs, is a worthwhile consideration during design particularly to establish baseline conditions."

LSS Response: LSS notes that additional PCB data in surface sediment adjacent to the Arkema site is critical to evaluating alternatives in the FS due to the high PCB detection limits. A large number of the PCB non-detects in surface and subsurface sediments adjacent to the Arkema site had elevated detection limits (i.e., >1 mg/kg), that probably result from DDx interference with the PCB Aroclor analysis. The PCB RAL footprints for the alternatives as developed in the FS have been and continue to be overestimated using the existing data set due to the elevated PCB detection limits (see PCB RAL footprint maps in Exhibits 10 and 11). The PCB map in Exhibit 11 is from a recent EPA presentation to the Portland Harbor Community Advisory Group on July 9, 2014. This map does not include the EE/CA data and is utilizing non-detect PCB results with high detection limits. Exhibit 12 presents a map with PCB concentrations in surface and subsurface sediments adjacent to the Arkema Site. Undetected values are color-coded gray on the core plots. Note that PCBs were not detected in the vast majority of sediment samples collected adjacent to the Arkema site. In addition, note that the split subsurface sediment samples collected by EPA during the EE/CA investigation did not have detections of PCBs and had low detection limits (e.g., WB-35, 10–20 ft below mudline: LSS sample, total PCBs=1.7 *U* mg/kg; EPA split sample, total PCBs=0.0017 *U* mg/kg). The analytical methods proposed by LSS in the Arkema Work Plan will limit or eliminate the elevated detection limit issue for PCBs and provide a more accurate assessment of the extent of PCBs at the site.

EPA Counter Response: *EPA acknowledges the issue with high PCB detection limits. However, the FS analysis underway offshore of the Arkema site is focused on total DDx and total dioxins and furans since*

the footprint of these two key COCs overlap the PCB footprint even considering the elevated detection limits. Furthermore, further efforts to characterize the PCBs offshore of Arkema may be performed during remedial design.

EPA September 5th Statement/Position: "EPA believes that the proposed sampling to refine the distribution of NAPL in subsurface sediments at the Arkema site could be useful for remedial design activities unrelated to work under the removal action AOC. However, as noted in the June 6th EPA letter, a working definition of NAPL needs to be established prior to this work going forward so that all parties agree with the core interpretation." (first paragraph, page 5)

LSS Response: The LWG's document responding to EPA's PTW approach stated the following (Exhibit 14): *"At the Arkema Site, continuous cores have been visually logged and hundreds of samples have been analyzed at the laboratory and, to date, no chlorobenzene NAPL has been found in Arkema sediments."* LSS fully agrees with the LWG's characterization. As long as EPA agrees with this statement provided in the LWG's PTW response document, LSS does not believe that any additional evaluation of NAPL in sediments adjacent to the Arkema site is warranted.

EPA Counter Response: *EPA disagrees that "to date, no chlorobenzene NAPL has been found in Arkema sediments." As noted in EPA's September 5, 2014 letter (Exhibit 3 to this Response), EPA's contractor, CDM Smith evaluated whether NAPL was present in sediment cores collected offshore of the Arkema facility. The CDM Smith memorandum is presented as Exhibit 5 to this Response. Review of sediment core logs have resulted in the following observations:*

Core	*Core Log Observations*
WB-6	*The sediment core log noted the presence of a "residual NAPL" from 11.8 to 11.9 feet below mudline (ft bml).*
WB-11	*The sediment core log included the following observations:* • *"Trace of dark brown oily material" noted at 6.5 to 7.5 ft bml.* • *"Strong odor" accompanied by a "few black bands 1" thick" were noted from 13.5 to 14.5 ft bml.*
WB-35	*The sediment core log included the following observations:* • *"Small brown oil globules" noted from 8 to 9.3 ft bml.* • *"Small brown oil globules" noted from 10 to 10.8 ft bml.* • *"Few oil globules" noted from 13.2 to 13.3 ft bml. "Heavy sheen with oil globules" noted from 18 to 19 ft bml.*
WB-36	*The sediment core log noted the presence of "SAND with black oily material" and a "strong chemical/decaying vegetation odor" from 9.5 to 10 ft bml.*
WB-49	*The sediment core log noted the presence of a "A few small spotty brown oil globules" from 3 to 4 ft bml.*
C358	*The sediment core log noted the presence of a "Black liquid with oily odor" from 54 to 56 centimeters bml (1.77to 1.83 ft bml).*

These observations demonstrate the presence of NAPL in sediments offshore of the Arkema site. However, as stated in our September 5 letter, the Arkema sediments meet other lines of evidence for identifying PTW. Thus, whether there is NAPL or not would not necessarily change EPA's proposed PTW designation of sediment off of Arkema's facility. EPA is on record as agreeing that Arkema could further sample for NAPL for design purposes if it chooses.

EPA September 5th Statement/Position: "As described above, EPA believes that characterization activities to refine the extent of NAPL at the Arkema site can be used to support remedial design activities but is not needed for the Portland Harbor FS." (third paragraph, page 5)

LSS Response: As noted above, LSS fully agrees with the LWG's characterization presented in the response to EPA's PTW approach (Exhibit 14): *"At the Arkema Site, continuous cores have been visually logged and hundreds of samples have been analyzed at the laboratory and, to date, no chlorobenzene NAPL has been found in Arkema sediments."* As long as EPA agrees with this statement, LSS does not believe that any additional evaluation of NAPL in sediments adjacent to the Arkema site is warranted.

EPA Counter Response: *EPA does not agree that no chlorobenzene NAPL has been found in Arkema sediments. See above table and Exhibit 5 to this Response.*

EPA September 5th Statement/Position: "EPA's contractor, CDM Smith, evaluated whether NAPL was present in sediment cores collected offshore of the Arkema facility…In addition, sediment concentrations offshore of Arkema exceed theoretical saturated sediment thresholds for chlorobenzene and total DDT, which provide indirect evidence that NAPL may be present." (last paragraph, page 4)

LSS Response: LSS notes that CDM Smith and EPA incorrectly applied the 1 percent solubility rule-of-thumb to total DDT (a material that is a solid, not a NAPL, at room temperature). Additional LSS comments on the CDM Smith NAPL memorandum are presented in LSS' January 24, 2014 dispute letter (Exhibit 15). See also the LWG response to EPA's PTW approach (Exhibit 14).

EPA Counter Response: *EPA acknowledges that the solubility rule of thumb is a secondary line of evidence. However, as presented in the above table, observations presented in sediment core logs document the presence of NAPL in sediments offshore of the Arkema site. EPA is currently evaluating the solubility rule-of-thumb and its applicability to the identification of PTW at the Portland Harbor Site for purposes of the FS evaluation and Arkema and EPA may further discuss this issue under the RI/FS AOC.*

D. CONCLUSIONS REGARDING DISPUTED ITEMS

EPA staff request that dispute official determine that:

(1) it is appropriate for EPA to disapprove the April 2014 Draft Sediment Sampling Work Plan submitted under the 2005 AOC; and

(2) that the 2005 AOC should be terminated in accordance with the agreement documented in Steve Parkinson's March 2014 letter no later than 30 days from the date of the dispute official's decision; or

the Dispute Official could provide Arkema the opportunity to request EPA to amend the 2005 AOC and SOW to gather additional data for purposes of advancing the remedial design of the future remedial action in sediment adjacent to the Arkema facility, and determine specifically that the schedule for completion of the RI/FS would not be tied to the remedial design data gathering, within 10 days of the dispute official's decision. If the dispute official provides this opportunity to Arkema, EPA requests the dispute official determine the AOC amendment and work plan development proceed on the following schedule:

- EPA and LSS will work over the next 6 months to amend the AOC as necessary and agree on a scope for the pre-remedial design investigation.
- Within 75 days after AOC amendment and scope agreement, submit a draft work plan.

- Within 30 days after receipt of EPA comments on the draft, submit a final work plan for EPA approval.

The AOC provides that the Director of Environmental Cleanup will issue a written decision on the dispute to Respondent based on the record created. EPA's decision shall be incorporated into and become and enforceable part of the AOC and Respondent shall fulfill the requirements that were the subject of the dispute in accordance with EPA's decision.

EXHIBITS

Exhibit 1.

2005 Administrative Order on Consent for Removal Action, Portland Harbor Superfund Site, Arkema Inc. Facility, Portland, Oregon between U.S. EPA Region 10 and Arkema Inc. and Statement of Work.

2001 Administrative Order on Consent for Remedial Investigation/Feasibility Study, Portland Harbor Superfund Site, between U.S. EPA Region 10 and Respondents, U.S. EPA Docket Number CERCLA-10-2001-0240.

Exhibit 2. Sheldrake, S. Letter to Todd Slater, Legacy Site Services, LLC, dated February 11, 2013, regarding EPA Comments on Draft Engineering Evaluation and Cost Analysis, Arkema Early Action (dated July 26, 2012). U.S. Environmental Protection Agency, Region 10, Seattle, WA.

Exhibit 3. Block, S. Letter to Doug Loutzenhiser, dated September 5, 2014, regarding responses to LSS letter dated July 3, 2014 initiating informal dispute.

Exhibit 4. Table 2.0-1. Summary of Investigations Performed by Other Parties Included in the RI Data Set from the Draft Final Remedial Investigation Report, Portland Harbor RI/FS. Prepared for the Lower Willamette Group by Integral Consulting Inc., Windward Environmental LLC, Kennedy/Jenks Consultants, and Anchor QEA, LLC. August 29, 2011.

Exhibit 5. Peterson, L. and Dent, S. Memorandum to Sean Sheldrake, U.S. EPA Region 10, dated June 25, 2013, regarding Arkema Offshore NAPL Evaluation. CDM Smith Inc.